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Remarks

Thorough examination by the Examiner is noted and appreciated.

It is noted that Examiner has initially indicated allowable subject matter in claims 15 and 18, and where Applicants amended their claims to achieve indicated allowable subject matter, and where Examiner has now failed to comment as to why that subject matter in claims 15 and 18 is apparently now no longer considered allowable subject matter.

Applicants have amended the claims to correct grammatical errors and to further clarify the claims.

Support for the amendments is found in the previously presented claims, the Figures (see Figure 3) and the Specification.

No new matter has been added.

Claim Objections

Claim 15 has been amended to overcome Examiners objection.

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Claim Rejections under 35 USC 103

1. Claims 1-3, 5, 9, 15-16, 19-28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over by Langley (US 6,424,733), and further View of Madan et al. (US 6,258,408).

Langley discloses a cluster tool including an adjacent inspection station for inspecting a wafer within the inspection station on a chuck (col 3, lines 50-54; col 4, lines 1-10) following processing in a process chamber (see Abstract). The inspection station is equipped with a light source, preferably a laser, (36; Figure 1) stationarily positioned above the wafer (26) which is positioned on a rotatable chuck (40) within the inspection chamber, and a light receiver (38) stably positioned above the wafer for receiving light reflected from the wafer within the inspection chamber (i.e., at an angle about 45 degrees from perpendicular of the wafer (see light beams 44, 50; Figure 1). (see also col 3, lines 50-53; col 4, lines 1-10; lines 15-23; lines 47-52).

Thus, Langley fails to disclose several aspects of Applicants invention including those elements in **bold type**:

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"an inspection chamber positioned horizontally adjacent a transfer chamber, said transfer chamber adjacent the at least one process chamber; and

"a camera provided in said inspection chamber, said camera mounted on a camera support, said camera support adapted to horizontally bi-directionally move within said inspection chamber and said transfer chamber to position said camera to view the interior of the at least one process chamber."

Madan discloses a flexible substrate system that may be processed in a circular multiple chamber vacuum deposition system (see Figure 1; col 4, lines 1-67) where Madan et al. further disclose "while not shown, a video system is provided within centrally located vacuum chamber 22 (transfer chamber) to enable the process to be monitored from that viewpoint". Madan et al. further discloses that the centrally located vacuum chamber has bi-directionally rotatable robotic arm (23) (col 4, lines 56-59) and viewing stations 14, 15, and 16, where an operator may view internal operations that are taking place within centrally located vacuum chamber 22 (col 5, lines 1-5).

Thus, Madan discloses a videos system within the centrally located vacuum chamber (for transfer of a process substrate

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between chamber) for viewing the transfer process, which may also be visually monitored by operator through viewing ports. Note that Madan does not disclose what the process is to be monitored i.e., whether operation of the transfer robot or any thing else.

Madan nowhere discloses or suggests " a camera provided in said inspection chamber, said camera mounted on a camera support, said cameras support adapted to horizontally bi-directionally move within said inspection chamber and said transfer chamber to position said camera to view the interior of the at least one process chamber."

Examiner is mistaken in alleging that Madan et al. disclose "a camera mounted in an inspection chamber, said camera mounted on a camera support, said camera support adapted to horizontally bidirectionally move within said inspection chamber to view the interior of the at least one process chamber" note Examiner refers to col 4, lines 50-64 where no such disclosure is found.

Rather, Examiner is modifying without any support or teaching in Madan et al. prior to attempting to impermissibly modify Langley.

Examiner thus concludes without any teaching or support provided anywhere that it would have been obvious to one of

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ordinary skill to modify Madan et al. to achieve Applicants invention.

Examiner does not explain how a video system of undisclosed structure located in a central transfer chamber with a bi-directionally rotatable robotic arm suggests would be used to modify Langley, or where any suggestion or benefit would be realized by such modification.

Moreover, any such modification of the inspection station of Langley including the image detector and light source of Langley with the wafer located on a rotatable chuck for inspection, in an attempt to reproduce Applicants invention would **change the principle of operation** of the image detection system of Langley (stationary image detection of light reflected at about 45 deg from the wafer surface on the chuck) and make the **stationary image detection system** of Langley **unsuitable for its intended purpose**.

Thus, Madan et al. does not disclose what Examiner asserts and furthermore, any modification of Langley by Examiner in an attempt to reproduce Applicants invention is impermissible as a matter of law.

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"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." *In re Ratti*, 270 F.2d 810, 123, USPQ 349 (CCPA 1959).

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

"**First**, there must be some **suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second**, there must be a **reasonable expectation of success**. **Finally**, the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

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With respect to claim 3, Examiner is mistaken; Madan et al. nowhere disclose or suggest "a motion actuating mechanism operably engaging said camera support, said actuating mechanism adapted to horizontally bi-directionally move said camera support in said inspection chamber and said transfer chamber".

With respect to claims 5 and 15, Examiner is mistaken that Langley anywhere discloses or suggest "an electrostatic catch head carried by said camera, said electrostatic catch head adapted to remove particles from said inspection chamber".

Examiners contention that the laser light source corresponds to an electrostatic catch head is unsupported and contrary to the plain meaning of Applicants claim language and as would be understood by one of ordinary skill in the art.

See e.g., MPEP 2111.01:

During examination, the claims must be interpreted as broadly as their terms reasonably allow. **This means that the words of the claim must be given their plain meaning** unless applicant has provided a clear definition in the specification. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

See also *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) ("Claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation'." 710 F.2d at

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802, 218 USPQ at 292 (quoting *In re Okuzawa*,
537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976))
(emphasis in original).

When not defined by applicant in the specification,
the words of a claim must be given their plain meaning.
In other words, they must be read as they would
be interpreted by those of ordinary skill in the art. *In*
re Sneed, 710 F.2d 1544, 218 USPQ 385 (Fed. Cir.1983).

With respect to claims 21, 24, 26, and 28, Examiner is clearly mistaken; Langley et al. nowhere disclose or suggest "wherein said camera comprises a light source". Rather as pointed out above Langley et al. clearly discloses that the image detector is separated from the light source (light reflected off wafer to be collected by detector).

With respect to claims 22, 23, 25, and 27, Examiner is clearly mistaken; Langley et al. nowhere disclose or suggest "wherein said camera is a panoramic camera".

2. Claim 13 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Langley above, and further in view of Madan et al., above.

Applicants reiterate the above comments with respect to Langley et al. and Madan et al.

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Please note that the combination of Langley and Madan nowhere disclose or suggest Applicants invention including those elements in **bold type**:

"An apparatus for **visualization of conditions in multiple process chambers** of an integrated cluster tool having a central transfer chamber, comprising:

an inspection chamber for positioned adjacent to the transfer chamber; and

a camera assembly having a camera provided in said inspection chamber, **said camera assembly adapted to view the interior of at least one of the process chambers;**

wherein said camera assembly comprises an elongated camera support and a motion actuating mechanism operably engaging said camera support, said actuating mechanism adapted to bidirectional move said camera support in said inspection chamber and said transfer chamber to view the interior of the least one of said process chambers, and wherein said camera is carried by said camera support."

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Please note again that Examiner is clearly mistaken in asserting that Madan discloses Applicants camera assembly. Madan merely disclose a **video system** "unshown" in a centrally located transfer (which includes a **bidirectionally rotatable robotic arm**) "for viewing the process to be monitored form that viewpoint" (see col 4, lines 65-col 7, line 10). Note that Madan does not disclose what the process is to be monitored i.e., whether operation of the transfer robot or any thing else. Madan nowhere discloses a camera, a camera assembly, a camera support or an actuating mechanism operably engaging the cameras support.

Moreover, any such modification of the inspection station of Langley including the image detector and light source of Langley with the wafer located on a rotatable chuck for inspection, in an attempt to reproduce Applicants invention would **change the principle of operation** of the image detection system of Langley (stationary image detection of light reflected at about 45 deg from the wafer surface on the chuck) and make the **stationary image detection system** of Langley **unsuitable for its intended purpose**.

Thus, Madan et al. does not disclose what Examiner asserts and furthermore, any modification of Langley by Examiner in an attempt to reproduce Applicants invention is impermissible as a

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matter of law.

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." *In re Ratti*, 270 F.2d 810, 123, USPQ 349 (CCPA 1959).

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

"**First**, there must be some **suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second**, there must be a **reasonable expectation of success**. **Finally**, the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir.

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1991).

3. Claim 17 and 18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Langley above, and further in view of Madan et al., above.

Applicants reiterate again, the above comments with respect to Langley et al. and Madan et al.

Please note that with respect to claims 17 the combination of Langley and Madan nowhere disclose or suggest Applicants invention including those elements in **bold type**:

"An apparatus **for visualization of conditions in multiple process chambers** of an integrated cluster tool having a central transfer chamber, comprising:

an inspection chamber positioned adjacent to the transfer chamber;

a camera assembly having a camera provided in said inspection chamber said camera mounted on a camera support adapted to horizontally bi-directionally move within said inspection chamber and said transfer chamber to position said

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camera to view the interior of at least one of the process chambers;

an electrostatic catch head carried by said camera assembly, said electrostatic catch head adapted to remove particles from said inspection chamber; and

a voltage source operably connected to said catch head, said voltage source adapted to impart an electrostatic charge to said catch head."

Please note that with respect to claim 18 the combination of Langley and Madan nowhere disclose or suggest Applicants invention including those elements in **bold type**:

"The apparatus of claim 17 wherein said camera support comprises an elongated camera support and a motion actuating mechanism operably engaging said camera support, said actuating mechanism adapted for said horizontal bidirectional movement of said camera support in said inspection chamber and said transfer chamber, and wherein said camera and said catch head are carried by said camera support."

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Examiner mistaken assertions and impermissible modification of Langley have been discussed above.

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." *In re Ratti*, 270 F.2d 810, 123, USPQ 349 (CCPA 1959).

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

"First, there must be some **suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second**, there must be a **reasonable expectation of success**. **Finally**, the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's

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disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

See also MPEP 2111.01:

During examination, the claims must be interpreted as broadly as their terms reasonably allow. **This means that the words of the claim must be given their plain meaning** unless applicant has provided a clear definition in the specification. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

See also *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) ("Claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation'." 710 F.2d at 802, 218 USPQ at 292 (quoting *In re Okuzawa*, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976)) (emphasis in original).

When not defined by applicant in the specification, the words of a claim must be given their plain meaning. **In other words, they must be read as they would be interpreted by those of ordinary skill in the art.** *In re Sneed*, 710 F.2d 1544, 218 USPQ 385 (Fed. Cir. 1983).

Conclusion

The cited references fail to produce or suggest Applicants disclosed and claimed invention and therefore fail to make out a *prima facie* case of obviousness with respect to Applicants independent and dependent claims.

Applicants have amended the claims to correct grammatical

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errors and further clarify their invention to define over the cited art.

Based on the foregoing, Applicants respectfully submit that the Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

In the event that the present invention as claimed is not in condition for allowance for any reason, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

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